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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/088,358 | 03/18/2002 | Tara Cutler | MERCK 2388 | 9086 |
| 23599 | 7590 | 07/12/2004 | EXAMINER | |
| MILLEN, WHITE, ZELANO & BRANIGAN, P.C. 2200 CLARENDON BLVD. SUITE 1400 ARLINGTON, VA 22201 | | | CALEY, MICHAEL H | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2871 | |

DATE MAILED: 07/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/088,358

Applicant(s)

CUTLER ET AL.

Examiner

Michael H. Caley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 June 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-19,21 and 22 is/are allowed.
- 6) ☒ Claim(s) 20 and 23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 06142004
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 20 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winker et al. (U.S. Patent No. 5,504,603 "Winker") in view of Chung et al. (U.S. Patent No. 5,995,184 "Chung") and Van Haaren et al. (U.S. Patent No. 5,798,808 "Van Haaren").

Regarding claim 20, Winker discloses an optical compensator for liquid crystal displays having:

- at least one O plate retarder (Figure 8);
- at least one A plate retarder (Figure 8); and
- at least one negative C plate retarder (Figure 8);

Winker fails to disclose the negative C plate as comprising a linear or crosslinked polymerized chiral liquid crystalline material with a helically twisted structure having a helical pitch of less than 250 nm. Chung, however, teaches the use of a helically twisted A plate retarder as a means of improving the optical quality of the compensator while simplifying the construction process (Column 2 lines 28-57, Column 6 lines 29-43). Van Haaren teaches such a twisted A-plate, having properties of a negative C-plate retarder (Column 2 lines 27-39),

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comprising a chiral liquid crystalline material as proposed having a helical pitch of less than 250 nm (Column 1 lines 44-48).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have constructed the negative C plate from a chiral liquid crystalline material with a helically twisted structure having a helical pitch of less than 250 nm. Such a construction method would have been motivated by a desire to improve the optical quality of the compensator and reduce the cost of producing the compensation film as taught by Chung. It would have been advantageous to construct the negative C plate as a twisted layer as taught by Chung in order to benefit from the improved uniformity of optical properties compared to a compressed film (Chung, Column 1 line 61-Column 2 line 28) while reducing the construction cost (Column 2 lines 28-57).

Additionally, one would have been motivated to construct the compensator having the proposed pitch and twist angle to realize a compensator having a maximum number of gray levels (Van Haaren, Page 1 lines 13-27). Van Haaren teaches compensators having pitches less than 250 nm and twist angles of greater than 360 degrees to achieve maximum gray levels (Page 4 lines 20-30). Van Haaren teaches additional gray levels as advantageous in an optical compensator as a means of reducing the angle dependence of color and contrast in viewing a liquid crystal display. Such a compensation characteristic is consistent with the design objectives disclosed by Winker in reducing unwanted light leakage in the black state (Winker Column 1 line 43 – Column 2 line 6, Column 4 lines 1-58; Van Haaren Column 1 lines 49-64).

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Regarding claim 23, Winker discloses the compensator as having one or more negatively birefringent C-plates (Column 2 lines 54-55).

Response to Arguments

Applicant's arguments filed 6/14/2004 concerning the rejection of claims 20 and 23 as unpatentable over Winker, Chung, and Van Haaren have been fully considered but they are not persuasive.

While it is agreed that Van Haaren does not explicitly name the disclosed compensation layer as a "negative C plate", Van Haaren does disclose the same structure and optical characteristics of a negative C-plate (Column 1 lines 49-64, Column 2 lines 27-33, Column 3 lines 31-40). Since the compensator disclosed by Van Haaren has the same structure and behavior as a negative C-plate retarder, the compensator may be identified as such.

Although Van Haaren fails to disclose a combination of a negative C-plate with an A plate retarder and an O plate retarder, such combinations are common in the art, as disclosed by Winker (Figure 8). Furthermore, Chung mentions Winker's disclosure (Chung, Column 1 line 44) as an example of a compensator configuration that may be enhanced by the use of a cholesteric compensator such as is disclosed by Van Haaren.

Allowable Subject Matter

Claims 1-19, 21 and 22 are allowed.

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Regarding independent claims 1 and 19, the prior art fails to disclose or suggest an optical compensator having the proposed plate retarders in which the A plate and the O plate have substantially the same retardation.

Regarding independent claim 21, the prior art fails to disclose or suggest an optical compensator having the proposed O plate and A plate retarders and exactly two negative C plate retarders.

Regarding independent claim 22, the prior art fails to disclose or suggest an optical compensator having the proposed plate retarders in which the C plate is disposed between the O plate and the A plate. Such a general structure exists between two optical compensators straddling the liquid crystal layer as disclosed by Winker (Column 9, Table I line 66), however, it is neither disclosed or suggested in the prior art that such a structure exist within a single compensator.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael H. Caley whose telephone number is (571) 272-2286. The examiner can normally be reached on M-F 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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TARIFUR R. CHOWDHURY
PRIMARY EXAMINER